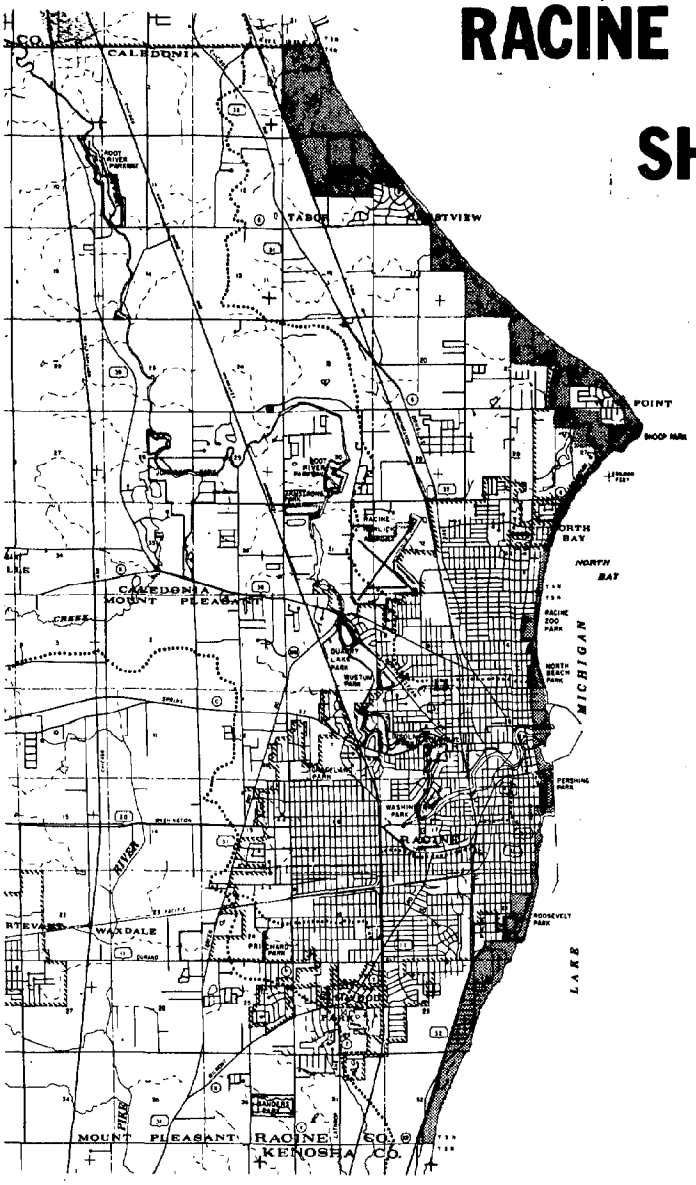
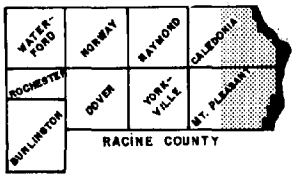
RACINE COUNTY SHORELAND CADASTRE PROGRAM





STUDY AREA

HD
266
.W57
R33
1981

PREPARED BY
CINE COUNTY PLANNING & ZONING DEPARTMENT

ıncial assistance for the preparation of this report has been provided through the Wisconsin stal Management Program by the Coastal Zone Management Act of 1972, administered by the eral Official of Coastal Zone Management, National Oceanic & Atmospheric Administration.

Wisconsin Coastal Zone Management Program

HD266.W57 R33 1981 c.1

RACINE COUNTY SHORELAND CADASTRE PROGRAM

FINAL REPORT

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
Charleston, SC 29405-2413

Financial Assistance for the preparation of this report has been provided through the Wisconsin Coastal Management Program by the Coastal Zone Management Act of 1972, Administered by the Federal Official of Coastal Zone Management, National Oceanic & Atmospheric Administration.

July 1981

TABLE OF CONTENTS

Appendices

INTRODUCTION

The Shoreland Cadastre program conducted by Racine County was a demonstration project designed to provide the county with a record keeping system for all public and private lands along the Lake Michigan shoreline. The primary intent of the program was to make available in a comprehensive and processible form a wide variety of land related information.

Racine County was one of the first coastal counties in the State of Wisconsin able to undertake such a program, primarily because it is the only county that has been totally remonumented and tied to the state plane coordinate system. This provided the county with the necessary survey control to develop a cadastre. Accurate monumentation of all the U.S. Public Lane Survey quarter section corners is a procedure necessary to accurately locate and identify property lines.

The development of the Shoreland Cadastre for the Racine County coastline is a vital component of an overall coastal planning and management program, especially with regard to the ongoing shoreland policies governed by the State of Wisconsin Coastal Management Agency. The Shoreland Cadastre program can help to ensure the balanced land use, improve the implementation and enforcement of existing regulations, and aid in the development of new coastal management policies.

The initial step in establishing the Shoreland Cadastre was the identification and plotting according to the county survey control system of all properties along the coastline of Racine County. The physical information related to each parcel (land use, zoning, soils, topography, etc.) was then gathered systematically and stored in computer data banks at the Southeastern Wisconsin Regional Planning Commission (SEWRPC) and the Racine County Computer and Data Processing Center.

This information was made available for easy retrieval through the use of computer terminals at various agencies. Throughout the entire procedure, precision and consistency in obtaining, storing, and retrieving the land related information was stressed.

The uniqueness of the Shoreland Cadastre program is evidenced by the versatile ways in which the analysis and the end product can be utilized by various agencies and communities. The analysis sets forth (1) the type of problems encountered; (2) suggestions for possible addition or deletion of information; (3) how to effectively set up techniques for methodically collecting information; (4) the type of technical assistance required; (5) possible expansion of the program to cover a larger area; and (6) value of the Shoreland Cadastre program to Racine County. The end product is an assemblage of information for each precisely defined ownership parcel base, intended to assist agencies and communities in formulating and evaluating land and coastal policies. With the completion of the Shoreland Cadastre program a firm foundation has been set for the future planning and management of Racine County's coastal areas.

The analysis of the program contained herein should give other agencies and communities an example of the value and possible limitations of this particular type of project. In addition, this analysis and the information gathered should prove to be useful tools for decision-makers by enabling local, regional, and state governments to initiate and continue effective coastal land management policies.

PURPOSE OF PROGRAM

The Racine County Shoreland Cadastre is a parcel-based, computerized lands record system designed to conveniently provide the public, in a clearly comprehensible form, a variety of physical information regarding the land adjacent to Lake Michigan. The project has not provided an increase in the land data presently contained in public records. It has, instead, resulted in simplifying the access to this information. It is the purpose of the Shoreland Cadastre to provide access to this information already available. This was accomplished first, by simplifying the format in which it was presented and second, by funneling the information from many sources into one comprehensive source.

This program is designed to allow for the convenient addition of further classifications of geographic land data and also to be readily adaptable for aggregation into broader area land information systems. It is believed by its makers to form the foundation for more informed decision-making by planners, tax officials, surveyors, engineers, developers, present and potential land owners, and others concerned with real property attributes.

The development of the Shoreland Cadastre for the Racine County coastline is one of the most vital components of a comprehensive coastal planning and management program. The Shoreland Cadastre is particularly useful in providing information regarding access rights to Lake Michigan, land values and ownership for land acquisition programs to increase public access to Lake Michigan, and public works projects designed to protect the Lake Michigan shoreline.

The project is a collection of people, procedures, computer facilities and data all working together to collect, process, and provide output for a diverse groups of uses. It could be used as a standardized method for implementation of the remaining area of Racine County and as a demonstration project for the other areas in the state or country to consider.

The Shoreland Cadastre is not just an available resource, but rather a component of the planning and management functions which should assist in the decision-making process concerning Lake Michigan coastline uses at the local, regional and state levels. In summary, the main objectives of the Shoreland Cadastre program are:

1. The attainment of a high degree of precision in the manner in which a computer would store and conveniently retrieve data in a comprehensive form;

2. Determine the quantity, value and ownership of all real estate abutting the Lake Michigan coastline in Racine County;

3. Provide an identification of easements, riparian rights and mineral rights;

4. Assist in local, regional, and state analysis of federal erosion and flood programs;

5. Provide physical land use, improvement and shoreland hazard information per parcel;

6. Provide a better means of monitoring property rights as laws and local ordinances change; and

7. Provide a base plan or map for the detailed planning and administration of lands in the vicinity of the Lake Michigan shoreline.

METHODOLOGY

Background Information

The organization of the Shoreland Cadastre program centered around the establishment of a Technical Advisory Steering Committee. The Steering Committee's function was to retain a consultant, identify the shoreland area to be included in the Cadastre, design an individual parcel coding form to summarize all pertinent information for each parcel, assign respective tasks to the consultant, the county departments, and the regional agency (SEWRPC), and monitor and supervise the implementation of the project.

The Steering Committee for the Shoreland Cadastre program was composed of representatives from the County Register of Deeds Office, Real Estate Description Department, Planning and Zoning Department, Data Processing Department, Highway Department, County Clerk's Office, the Southeastern Wisconsin Regional Planning Commission (SEWRPC), and the City of Racine Clerk of Courts. It was the Committee's function to regularly meet and coordinate all aspects of the program regarding the collection and dissemination of data. Other persons who attended the meetings as interested parties included representatives from the State Cartographer's Office, township officials, and University of Wisconsin educators.

The Steering Committee selected a consultant to carry out the tasks necessary to complete the program. The Committee was advised that a civil engineer was necessary in order to meet certain legal requirements pertaining to land ownership rights and encumbrances. The county surveyor, John Nielsen of Nielsen Madsen & Barber Consulting Civil Engineers, was retained as an approved sole-source contractor (see Appendix A for a copy of the contract). The county surveyor was chosen for the position because of his substantial knowledge of surveying, engineering, and land ownership rights and encumbrances in the County's shoreland area. The county surveyor has access to county records of ownership and, therefore, did not require indoctrination and orientation of county procedures and policies.

The committee met several times in the first few months to clarify and assign respective tasks to the consultant, county departments, and the regional agency (SEWRPC). The result was the creation of a detailed information gathering flow chart.

The flow chart contains six phases. Each phase contains a listing of various work elements and designates the agency to which the work elements are delegated (see Figure One).

Methodology--Shoreland Cadastre Mapping

John Nielsen of Nielsen Madsen & Barber, Consulting Civil Engineers, prepared 35 Shoreland Cadastral Maps and 35 Shoreland Cadastre Key Maps. The ability to effectively complete this task lies in the fact that Racine County has been totally remonumented and tied to the state plane coordinate system.

The following discussion gives a detailed account of the procedures to establish the state plane coordinates of all individual parcel corners in the coastal zone and to develop a series of point numbers, each point number being the computer code location of a parcel corner coordinate pair. In addition, the discussion includes the map outputs that can be derived from the stored drafting and annotation sequences.

Coordinates: State plane coordinates of all the Section and ¼ Section corners in Racine County were determined in the course of the County's Integrated Large-Scale Mapping and Control Survey Program completed in 1977. These are grid coordinates. The use of grid coordinates permits the true scale representation of points on the earth's curved and irregularly sloping surface upon a plane surface--the map.

In order to arrive at these grid coordinates the distance measurements made in the course of the control surveys were reduced by a sea-level factor and a grid factor. It follows that the distances derived by inverse between the grid coordinates of any two points will differ from the surface measurement by a factor which is the product of the sea-level and grid factors for the particular location.

The distances used in property descriptions are the horizontal distances, measured at the earth's surface, between property corners. Input or output in grid lengths would only be confusing to users of this Cadastre.

The coordinates in storage for points referred to in this project are modified state plane coordinates. The modification was achieved by dividing each coordinate by the appropriate combined factor. Inverse between the coordinates so modified yields the surface measurement lengths between the coordinated points. The state plane coordinates for any point can be obtained by multiplying the stored coordinates by the combined factor.

The Large-Scale Mapping and Control Survey Program utilized a single representative combined factor for each U.S.P.L.S. township; the same has been done in this program. Within this project area a combined factor of 0.9999716 has been used in Township 3 North, and a combined factor of 0.9999513 in Township 4 North.

With the project coordinates of the controlling corners thus determined, the individual parcel corner coordinates were determined by following the same procedures that would be used in a survey of each of the undivided parcels.

Figure One

INFORMATION GATHERING FLOW CHART

PHASE ONE	PARCEL CODING FORM (By SEWRPC, Planning and Zoning Department, Real Estate Description Department, and Consultant)
PHASE TWO	PREPARE COORDINATE STORAGE KEY MAP Outline Parcels Assign Tax Key No./Parcel No. (By Consultant)
PHASE THREE	ASSIGN TO PARCEL Parcel Code Form No. Computer No. County No./District No. Address School District/Sanitary District Tax Classification Value Acreage (By Real Estate Description Department)
PHASE FOUR	ASSIGN TO PARCEL Survey No./Acreage/Volume & Page No. Abbreviate Parcel Description Problems Restrictions Easements Rights and Encumbrances (By Consultant)
PHASE FIVE	ASSIGN TO PARCEL Zoning Land Use Soils Public Improvements Private Improvements Shoreland Hazard Floodplain Hazard Historic Designation Farmland Preservation Tax and Other Tax Relief (By Planning and Zoning Department)
PHASE SIX	KEYPUNCH PARCEL DATA Data processing, convert diskettes, write computer programs (By SEWRPC)

(1) The deed--or other document upon which the title is based--was examined and the legal description analyzed to determine a point of beginning and a bearings base or title meridian. Coordinate geometry was used to then trace the legal description with the bearings converted to a grid north base.

(2) Public and private survey files were researched and actual survey information used, whenever available, to clarify deed descriptions. Many record descriptions are not tied directly to the U. S. Public Land Survey corners, but are dependent for location upon street, highway or railroad lines. These transportation lines in turn frequently lack record ties to the U.S.P.L.S. corners. Control traverses were run to determine the location of Sheridan Road, Main Street, Lake Avenue, Michigan Boulevard, North Main Street, Vincennes Circle, Lighthouse Drive, Wind Point Road and Lakeshore Drive. The parcel descriptions were then related through the control traverses to the U.S. Public Land Survey corners.

(3) The shore boundaries of those parcels which run to Lake Michigan were determined by scaling from the Racine County 1:2400 topographic maps where more definitive recent survey records were not available.

Boundary Description: The boundary description is input as a series of point numbers, each point number being the computer code location of a parcel corner coordinate pair. Point numbers are entered starting at the Southwest corner of the parcel and proceeding clockwise around the parcel boundaries. A negative sign is used to signal the beginning of a curve, a point of compound or reversed curvature, or the radius point of a counter-clockwise curve. The radius point number is entered following the point number of the end of the curve or curve segment.

The boundary description output is the lengths and bearings of each course, the coordinates of each corner, radius length and bearing, chord length and bearing, arc length, tangent distance and central angle for each curve, and the area of the parcel. (See Figure Two, Boundary Input and Output.)

Cadastral Maps: The stored drafting and annotation sequences have been used to plot 35 maps at 1:1200 scale covering the designated Lake Michigan coastal zone. These maps show the boundaries; lengths and bearings of sides and arc lengths of curves bounding the cadastral parcels. In general each map-sheet displays one quarter section. In some instances small fractional quarters have been plotted on the same map-sheet with adjoining quarters. Scale does not permit full annotation of some short lines. In such cases the information is available by inverse between the stored corner coordinates. Boundaries of spatially defined easements are indicated by dashed lines.

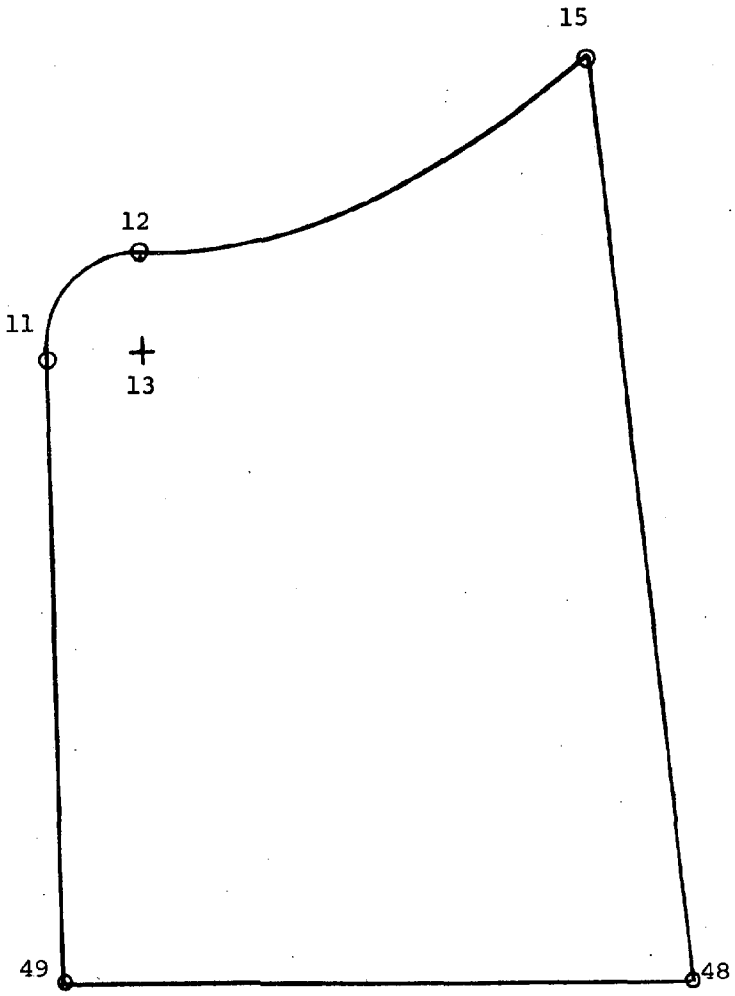
These maps are an output device used to display some of the information which has been stored and, at this scale, are useful for all the purposes for which property maps are used. The same maps can be plotted at any scale, with no duplication of effort other than actual plotting time, for purposes of overlay or aggregation.

As an example, an aggregated map of all the parcels in the entire coastal zone can be produced by entering into each drafting sequence the point numbers of points framing the zone and running the separate sequences.

Figure Two

INPUT

49 -11 -12 13 15 -14 48 49



OUTPUT

			272156.309	2558713.542	49
49	N 01 43 26 W	102.360	272258.623	2558710.463	-11
			272258.623	2558710.463	11
11	N 88 16 34 E	15.000	272259.074	2558725.456	13
CA=	90 00 00	ARC=	23.562	RAD= 15.000	
CB=	N 43 16 34 E	CHD=	21.213	TAN= 15.000	
13	N 01 43 26 W	15.000	272274.067	2558725.005	12
12	N 01 43 26 W	100.000	272374.022	2558721.996	14
CA=	45 50 12	ARC=	80.000	RAD= 100.000	
CB=	N 65 21 28 E	CHD=	77.884	TAN= 42.279	
14	S 47 33 38 E	100.000	272306.541	2558795.795	15
15	S 06 45 58 E	150.607	272156.982	2558813.540	48
48	S 89 36 51 W	100.000	272156.309	2558713.542	49

AREA= 11884.393 SQ. FT OR .27283 ACRES

Extensive automated cartographic systems are being developed for the display of the distribution of various geographic, social, cultural, demographic and other characteristics of the land. Typically such systems utilize some geometrically defined area, or data cell, with which specific characteristics are present. Plotting the aggregate of data cells within which some particular characteristic exists yields a pictorial representation of the distribution and density of that characteristic. The individual, boundary-defined, parcels are ideal for use as data cells for such an aggregation.

Key Maps: Key Maps have been plotted from the same drafting sequences as those used to generate the Cadastral Maps. These maps show only the boundary lines of the parcels and easements and the coordinate storage numbers of the corners: They have been plotted at 1:2400 for the purpose of overlaying upon Racine County topographic, soils and land use maps.

Methodology--Shoreland Cadastre Parcel Coding Forms

The following discussion concerns the manner in which information was obtained and recorded on the Shoreland Cadastre parcel coding forms by the Real Estate Description Department, the Planning and Zoning Department, the Consultant, and SEWRPC.

Each agency was assigned various tasks designated as work elements. The work elements followed a logical sequence; therefore, a natural transition from one phase to the next was developed. There are a total of six phases. The discussion contained in each phase describes what information was gathered and recorded, who was involved, problems if any, and methods used to obtain the necessary information.

Phase One: Phase one required the development of a parcel coding form; the agencies involved were: SEWRPC, Racine County Planning and Zoning Department, and the consultant, John Nielsen, of Neilsen Madsen & Barber, Consulting Civil Engineers.

The original parcel coding form was originally drafted in December 1978, and was subsequently revised and then reviewed in March 1979. (See Appendix B.)

The final parcel coding form adopted on July 14, 1979 contained eighteen data cateogries. The categories were:

1. Parcel identification by parcel numbers, street address, present tax key number, sanitary district, school district, survey file number, deed recording volume and page, and boundary description;
2. Real estate tax assessment information;
3. Area;
4. Boundary description;
5. Description problems;
6. Recorded restrictions;

7. Recorded easements;

8. Riparian rights;

9. Mineral rights;

10. Zoning classification;

11. Public improvements;

12. Land use;

13. Soil types;

14. Floodplain hazard;

15. Shoreland hazard;

16. Private improvements;

17. Historical designation; and

18. Agriculture preservation tax or other tax relief.

Phase Two: Phase Two required identification of the parcels comprising the shoreland cadastre area. The consultant used a map to identify parcel locations by Town, Range, and Quarter Section and prepared a listing of this information for use by other departments. The Real Estate Description Office, upon receiving the list along with all recorded plats that were involved, used their daily-updated assessment tax roll books to obtain the recorded volumes and pages of each parcel deed for the project area. Since the office did not have a complete work book at the time, a copy of their work and a listing of locations were then given to the Register of Deeds. The Register of Deeds researched their Tract Index and provided additional information. The Real Estate Description Office and the Register of Deeds provided the consultant with the volumes and pages of each parcel deed and the surveys for the project area. This comprised approximately 90% of the information needed. The consultant then researched the Tract Index on his own to complete the record.

Before any information could be placed on the parcel coding forms by the Real Estate Description Office, a problem had to be resolved. The first parcels plotted in the project area did not have any identification to indicate the tax key number and/or parcel number. Therefore, the Real Estate Description Office ran a duplicate of the tax-roll books so the consultant could determine the tax key number and place it on the Cadastral Maps. When this was completed, the consultant then returned the Cadastral Maps to the Real Estate Description Office so they could begin their work.

Phase Three: The Real Estate Description Office assigned a number to each individual parcel coding form, and each number corresponds to a particular tax key number on the Cadastral Maps. When the forms were matched with their respective plotted parcel, information was assembled and recorded on the forms to complete the work elements assigned to the Real Estate Description Office.

The work elements for Phase Three included the following:

1. Parcel identification number--Town, Range, Section, Quarter Section, Quarter Quarter Section (on all pages of the parcel coding form)

2. County No./District No.

3. Address

4. Sanitary District No.

5. Tax Key No./Parcel No.

6. School District No.

7. Land Classification Code
   A. Acreage as listed by local assessor
   B. Land and improvement value as listed by local assessor

8. Woodland tax code and acreage

9. Public lands subject to school tax
   A. Code
   B. Acreage
   C. Value

10. Classification when exempt from general property tax
    A. Code
    B. Acreage

The Real Estate Description Office returned the parcel coding forms and Cadastral Maps to the consultant for further processing.

Phase Four: To assemble the information required for the work elements of Phase Four, the consultant researched the title documents. However, this search did not go beyond the basic document upon which the present title rests. Therefore, information regarding deed restrictions, easements, riparian rights, and mineral rights may exist but was not recorded on the parcel coding form. Only information indicated by the document examined was recorded.

It is interesting to note that description errors and ambiguities have accumulated over the years which resulted in defects in some of the documents researched. Using these documents description as a basis for setting the coordinates used for the parcel boundaries will ultimately reflect these defects. This is clearly illustrated on the Shoreland Cadastral Mapping as overlaps, gaps, failure to close and other description problems.

The work elements for Phase Four included the following:

1. Description Problem
   A. Overlap
   B. Gap
   C. Failure to close
   D. Other (Specify)

2. Deed Restrictions
   A. Use
   B. Area
   C. Yard
   D. Building
   E. Subdivision
   F. Other (Specify)
   G. None listed on original deed

3. Utility Easement
   A. Sanitary sewer
   B. Water supply
   C. Drainage
   D. Electricity
   E. Natural gas
   F. Telephone
   G. TV
   H. General utility
   I. Other (Specify)
   J. None listed

4. Access Easements
   A. Pedestrian
   B. Vehicular
   C. Maintenance
   D. Other (Specify)
   E. None listed on original deed

5. Other Easements
   A. Air "rights"
   B. Vision clearance
   C. Scenic/recreation
   D. Building
   E. Other (Specify)
   F. None listed on original deed

6. Riparian Rights
   A. Run with title fee
   B. Excepted from title (Specify private, public, unknown)
   C. None listed on original deed

7. Mineral Rights-Ownership
   A. Runs with title fee
   B. Excepted from title (Specify private, public, unknown)
   C. None listed on original deed
   D. Physical description (sand, gravel, stone, general, other)

Phase Five: Several techniques were developed for obtaining information in Phase Five. When using these techniques, the Coastal Management Technician stressed precision and consistency in obtaining and recording the data.

One of the most useful and comprehensive techniques developed was used for acquiring information concerning utility services. Instead of using maps to identify parcels served by natural gas lines, water lines, sanitary sewer

lines, etc., and assuming the parcels adjacent to it were also serviced, the technician contacted the respective utility district to obtain a duplicate computerized customer billing list. By using these lists, addresses on the billing lists were then matched with addresses on the parcel coding forms. This provided an accurate updated record of the parcels within the Cadastre area that were serviced by each utility.

Another technique used was to conduct a field check of each parcel. This was especially useful to determine private and public improvements. In addition, it provided a means to ensure that the addresses on each form were correct.

When information was not readily available, time was required for research. The "Historical Designation" work element exemplifies this action. Information regarding the location of historical sites and structures was accessible. But information concerning the designation of local, state or federal, and whether it is registered, nominated and eligible, necessitated detailed research at the Historical Museum Library. Research work at the Town Halls was also required for gathering information concerning conditional uses and variances.

To record information concerning land use, zoning and soil types, maps were made at 1:2400 for the Cadastre area. Each map was color coded and labeled for easy reference. These maps were used in conjunction with the Key Maps, which were plotted from the same drafting sequences as those used to generate the Cadastral Maps. The Key Maps show only the boundary lines of parcels and easements and the coordinate storage numbers of the corners. They have been plotted at 1:2400 for the purpose of over laying soils, land use and zoning maps. (See Appendix C for an example of a key map overlaying soils, land use, zoning and topography maps.) This proved to be a very useful mechanism. For example, by using the Key Map for parcel C-17-2-3 over the land use map, three different land use categories are encompassed by the parcel boundary. A dot grid was used to calculate the percent of area in each land use category.

In some instances other documented work was used for obtaining information. The Wisconsin DNR Erosion Hazard Perception Map of Racine County along with the report Recent Recession of Lake Michigan Shorelines in Racine County, Wisconsin were great assets for determining shoreland hazard.

The work elements for Phase Five included the following:

1. Zoning Information
   - A. Zoning
   - B. Type
   - C. Percent

2. Conditional Use/Variance
   - A. Code
   - B. Describe

3. Public Improvements
   - A. Sanitary ewer
   - B. Water supply
   - C. Drainage
   - D. Electricity
   - E. Natural gas

F. Telephone
G. Paved streets
H. Curb and gutter
I. Sidewalks
J. Recreational facilities
K. Shoreland
L. Other (Specify)

4. Land Use
   A. Type
   B. Percent

5. Soils
   A. Type
   B. Percent

6. Floodplain Hazard
   A. Land
   B. Buildings

7. Shoreland Hazard
   A. Code
   B. Feet/year

8. Private Improvements
   A. Primary structure
   B. Accessory structure
   C. Shoreland structure
   D. Other (Specify)

9. Historical Designation
   A. Local Registered
   B. State Registered
   C. Federal Registered
   D. Local Nominated
   E. State Nominated
   F. Federal Nominated
   G. Local Eligible
   H. State Eligible
   I. Federal Eligible

10. Agriculture Land Preservation Tax/Other Tax Relief
    A. Code
    B. Per acre
    C. Acreage

Phase Six: The work products of the Cadastre contractor, Neilsen Madsen & Barber Consulting Civil Engineers are: (1) coordinates of all parcel corners and corners of those easements which can be spatially defined; (2) automated drafting sequences for each of the 35 map areas; (3) automated annotation sequences of each of the 35 map areas; (4) 35 Cadastral Maps; and (5) 35 Key Maps. The coordinates and automated sequences are stored on flexible diskettes. This information was given to the Southeastern Wisconsin Regional Planning Commission to be processed and translated in a form compatible with Racine County and SEWRPC equipment.

The processing of the collected information was a two-phase work effort. The first phase included the processing of data coded on the cadastre survey forms, while the second phase included the processing of parcel description information generated by the Racine County Surveyor and stored on a Wang computer flexible diskette.

With respect to the processing of information from the coded survey forms, the Commission data processing staff tabulated information for about 900 parcels located within the Towns of Caledonia and Mt. Pleasant, the Villages of Wind Point and North Bay, and the City of Racine, all or parts of which lie within the Cadastre area. About 1,000 characters or bits of information were coded for each parcel. Because of limitations of the Commission's No. 3741 data entry machines, which have a maximum entry of 128 characters per record, and in the consideration of logical grouping of the data, it was necessary to design 10 key punch layouts to record all of the information collected on the survey form. Using these layouts, the 900 forms were key punched and verified by the Commission's data entry staff, and computer programs were written to combine the recorded data into a single master record of 1,000 characters. The master record file was then sorted based upon the parcel number assigned by the Racine County Planning and Zoning staff and recorded on a magnetic tape at a density of 1,600 BPI, nine-track EBCDIC Code. Finally, a printout of the parcel data was transmitted to the Racine County Planning and Zoning staff for their review. Upon their review, necessary corrections were made to update the file and a final printout was generated and transmitted to the Racine staff for their future use.

With respect to the processing of parcel description information generated by the Racine County Surveyor, the work of the Commission involved the conversion of parcel description data--Wisconsin State plane coordinate information for each parcel corner--collected by the Racine County Surveyor using a Wang minicomputer and stored on a Wang diskette to a form which was compatible with SEWRPC data processing equipment. In order to accomplish this, the Commission utilized the assistance of a software firm, Data Plan, Inc., of Elm Grove, to convert the Wang diskette information to an IBM compatible tape. In all, 36 diskettes of data were converted by Data Plan to the IBM compatible tape.

Thus, with the data processing complete, both detailed information, with respect to each parcel initially collected on the inventory coding form, and parcel description information initially carried on Wang diskettes, are now available and can easily be processed and analyzed using the IBM computer system available at the Commission offices.

ANALYSIS--EFFECTIVENESS AND BENEFITS

The primary intent of the Shoreland Cadastre program was to make available in a comprehensive form a wide variety of land related information. This information in conjunction with the Shoreland Cadastral Maps has proven to have a functional use in aiding decision-makers.

The uniqueness of the Shoreland Cadastre program is evidenced by the versatile ways in which the information can be used by various agencies, communities and committees. For example, the Racine County Land Use Committee and the Racine County Coastal Management Program Technical Advisory Committee, have incorporated this particular source of information in reviewing Shoreland Condi-

tional use petitions. This information has made the committee more aware of the shoreland hazard potential, land use patterns, existing development patterns, existing public and private improvements, existing public services, and ownership of riparian rights, etc. In addition, the Shoreland Cadastre information has provided a valuable service to the public. Shoreland property owners and people interested in purchasing shoreland property have obtained, upon request, information concerning a particular parcel.

The Shoreland Cadastre Maps have been demonstrated to be a useful tool in a variety of ways. For example, the maps have been used for locating to a greater certainty, the reference points for the Racine County Coastwatch monitoring stations. This is especially useful for mapping the changing bluff line that is carefully measured at time intervals.

Basically the Shoreland Cadastre information is a quantification and identification system which should prove to have great potential. It is quite evident that this information should aid and improve administration and regulation of Racine County Shoreland.

To determine the effectiveness of the Shoreland Cadastre project, consideration must be directed to the end product.

The precision and accuracy achieved in this program is the basis for its success. This is attributed to the time and effort expended by the agencies involved and the realization of the value this project should have for them and the surrounding area. Therefore, the output or end-products have gone beyond the general scope first intended.

This is especially exemplified by the information concerning the availability of utilities, because the Cadastre project identifies from general to specific the exact areas by parcel that are currently being served.

This should prove to be a useful mechanism for planning. For example, a certain plotted parcel adjacent to the area in question may not have sanitary sewer service but the plotted parcels adjacent to the area in question are serviced. From this information, it can easily be deduced that a lateral extension is all that is needed. Or a particular parcel is identified as having water, sanitary sewer, natural gas and electricity already in service.

Throughout the entire program thoroughness in obtaining the best available information has been repeatedly demonstrated. The informtion for each parcel has been extracted and stored in computer banks along with respective coordinates and automated sequences for each plotted parcel map. This information can be obtained by interested agencies and individuals concerned with the location, value, ownership, limitations, improvements, etc. In addition, the City of Racine, Villages of Wind Point and North Bay, and Townships of Caledonia and Mt. Pleasant should find the information very useful as a planning and management tool to ensure the balanced use of the coastal environment, especially in regard to the development of local, regional, and state policies concerning Lake Michigan coastline uses.

The Shoreland Cadastre addresses the needs of both existing and prospective property owners by making available on an individual basis a comprehensive inventory of land related information.

It can bring forth information of which an existing or prospective property owner should be aware. This includes information concerning easements and other associated property rights, gaps, overlays, description problems, ambiguous boundary lines within the property survey, and potential shoreland hazards. To the prospective property owner access to information concerning zoning, land use, soil types, private and public improvements, land value, tax and acreage should also be useful for evaluating any property in the Shoreland Cadastre project area.

In addition, this program should prove to be a time saving device because all the information can be obtained from a single office rather than from several offices which may not be located in the same office building.

ANALYSIS OF SHORELAND RELATED PROGRAM ELEMENTS

Monitoring Property Rights as Laws and Local Ordinance Changes

The information and maps attained from the Shoreland Cadastre program could be used as the underlying basis for the future investigation and assessment of shoreland uses, regulations and policies. A foundation has been set for the 1980-1981 Racine County Shoreland Issue Conflict Resolution Project, in which the Racine County shoreland zoning ordinance, existing plans, and associated shoreland management practices will be reviewed and updated (or revised) to enhance and expand upon the expressed intent of Wisconsin Chapter 144.26--"Navigable Water Protection Law" and Wisconsin Chapter 59.97--"Zoning of Shorelands on Navigable Waters." The intent of the 1980-1981 program is to resolve conflicts that exist between existing shoreland plans/management priorities and practices.

Presently the initial impact of the Shoreland Cadastre program is the comprehensive public and private lands record keeping system. The inventory of information reveals the interrelationships between land uses, economic and social aspects of the Cadastral area. The variety of information regarding the land should aid in determining suitable shoreland uses now and in the future. Since a great diversity exists between urban and rural shoreland uses, administration of policies and regulations is essential.

Comprehensive planning usually occurs in five phases: problem identification, goal formulation, plan design, implementation, and evaluation. An inventory of land related information is needed to determine objectives and alternative plans which require adoption and enforcement followed by assessment of policy effectiveness. Adoption of regulations or policies should serve the best interest of the public, promote health, safety and general welfare. Essentially, county-wide adoption, administration and enforcement of regulations will serve the public by advising persons of permitted uses of their properties. Land use permits, conditional uses, shoreland conditional uses and variances are regulatory devices for proper planning.

To resolve conflicts that exist between shoreland plans/management techniques in concurrence with coastal management priorities and practices, a comprehensive land use inventory is mandatory. The Shoreland Cadastre project provides Racine County with this necessary information.

Quantity, Value, and Ownership of Real Estate

Another accomplishment of the Shoreland Cadastre program is the determination of quantity, value, and ownership of real estate abutting the Lake Michigan coastline in Racine County.

This information should provide the basis for any land use decision, especially in regard to lake access and land acquisition for public use. Accordingly, the provision of information concerning the quantity, value, and ownership of real estate could be integrated into a comprehensive plan in which lake access and land acquisition are two of the many elements that must be taken into consideration.

The construction of new lake accesses and improvement of existing lake accesses should function to serve the needs of the public. Depending on the objectives, it may be designed as an emergency pass, boat launching area, vehicular pass, recreational related active and/or passive activity area, a base for commercial activity, or an open space area preserving the aesthetic amenity of Lake Michigan and the shoreland.

Before formulating any plan for lake access and land acquisition, shoreland protection should be considered. Although the Shoreland Cadastre project does not evaluate the effectiveness and type of shoreland protection, it explicitly gives the locations of each structure and/or device. This information is pertinent for the development of public shoreland protection projects that are associated with land acquisition and public lake accesses.

The output of the Shoreland Cadastre project provides maps showing the boundaries and locations of the cadastral parcels. Coordinating the maps with the information from the parcel coding forms should greatly enhance planning and management decisions, ensure balanced land use, and coordinate regulations and coastal management policies in reference to land acquisition, lake access and shoreland protection in a comprehensive manner.

Shoreland Hazard

One of Racine County's greatest assets is the unique shoreland and water resources, notably Lake Michigan abounding in the area. However, shore erosion is a highly visible problem and has caused extensive damage to public and private properties. The Racine County Coastwatch program has monitored erosion and recession since September 1978. Currently, there are eleven (11) Coastwatch stations located in the shoreland cadastre area. The shoreland in the area is typified by bluffs in which sheet erosion, toe undercutting and bluff slumping are common occurrences.

In shoreland areas, soil composition, i.e., particle size and texture, is a major factor considered for analyzing the effects waves, wind, and precipitation have on bluff stability.

The Shoreland Cadastre project has provided greater certainty in clearly defining which areas of the coastline are more consistently affected by erosion causing forces. Since it is quite easy to compare the soil composition of each plotted parcel and the recorded amount of erosion and recession occurring, the cause and effect relationship can be better understood and located.

Although soil composition and erosion/recession rates have been recorded as part of the work elements of this project, the significant output of the Shoreland Cadastre project is the knowledge of these shoreland differences. This knowledge will have an effect on land use, land value, shoreland protection and future coastal management planning policies to prevent environmental degradation from uncontrolled shoreland development, unsightly shoreland use, and destruction of ecological balances.

Shoreland Protection

The Coastal Management Technician found it necessary to rely on an interpretation method for establishing a meaning between the terms "shoreland protection"--a public improvement, and "shoreland structure"--a private improvement.

The term "shoreland structure" within the work element private improvement was defined as structures and/or devices constructed and used for protecting a privately owned individual shoreland property. This included a wide range of protection methods, such as revetments, jetties, beach accretion groins, terracing, sloping, placed rip rap and loose rocks. To confirm the location of the structures and/or devices a field check was conducted by using maps containing information from the Cadastre Key Maps and topographic maps. The information was then transferred to individual parcel coding forms. It should be noted that on each parcel coding form a shoreland private improvement was also considered a shoreland public improvement and was indicated accordingly. The reasoning for this interpretation lies in the fact that a private improvement was considered to be in the best interest of the public.

The term "public shoreland improvement" is defined as structures and/or devices constructed and used to protect publicly owned land or to protect shoreland in the best interest of the public. This includes the same protection methods listed as private improvements with the addition of the Racine Harbor breakwater. The breakwater is a public constructed device and it protects public and private shoreland. It should be noted that this device does protect private shoreland within it, regardless of whether the private land has its own shoreland protection structure and/or device. On each parcel coding form public shoreland protection was indicated.

Using this interpretation method an interested agency or individual can easily determine one of four possible situations for each plotted parcel: 1) Private shoreland protection, 2) Public shoreland protection, 3) Private and public shoreland protection, and 4) No shoreland protection.

The intent of this project was to assemble and record all the information for each work element designated on the parcel coding forms. The design of the form does not permit the specification or detailing of the existing conditions and/or effectiveness of private and public improvements. For example, a particular coding form for a plotted parcel indicates that a private improvement has been made by the construction and use of a shoreland structure or device. The form does not indicate the effectiveness nor type of shoreland protection. Obviously, this is beyond the scope of the Shoreland Cadastre project.

The type and effectiveness of shoreland protection, whether a private or public improvement is valuable information worth obtaining. A possible recommendation is to pursue this idea to formulate another comprehensive shoreland project or expand the Shoreland Cadastre project to encompass this idea. It is clearly evident that if the Shoreland Cadastre included this work element, more time and technical expertise would be required for evaluating the structure or device and its effect on the shoreland property and adjacent properties.

Orientation of Parcels

From reviewing the Shoreland Cadastre Maps, an interesting observation concerning the orientation of shoreland parcels in relation to the Lake Michigan shore was revealed. In many cases, the existing shoreland parcels have been platted at various angles to the shoreline. The structures built on these parcels have been positioned at angles which may or may not be the same angle as the platted parcel in conjunction with the shoreline (see Map One). It has been observed that effective shoreland protection is directly related to the orientation of shoreland parcels and structures in relation to the shoreline.

Shoreland erosion and recession have been monitored and recorded in the Shoreland Cadastre area by the Racine County Coastwatch program since September 1978. The information obtained concurs with the generally accepted consensus that erosion occurs in a perpendicular direction to the shoreline. Therefore, if a parcel is oriented to any other angle, the rate of erosion and recession is usually increased. It is very important to note that there are various erosion-causing factors and the mechanisms of these forces are interrelated. The predominant erosion causing force in this discussion is the force from incoming wave action with respect to the particular topography of the land.

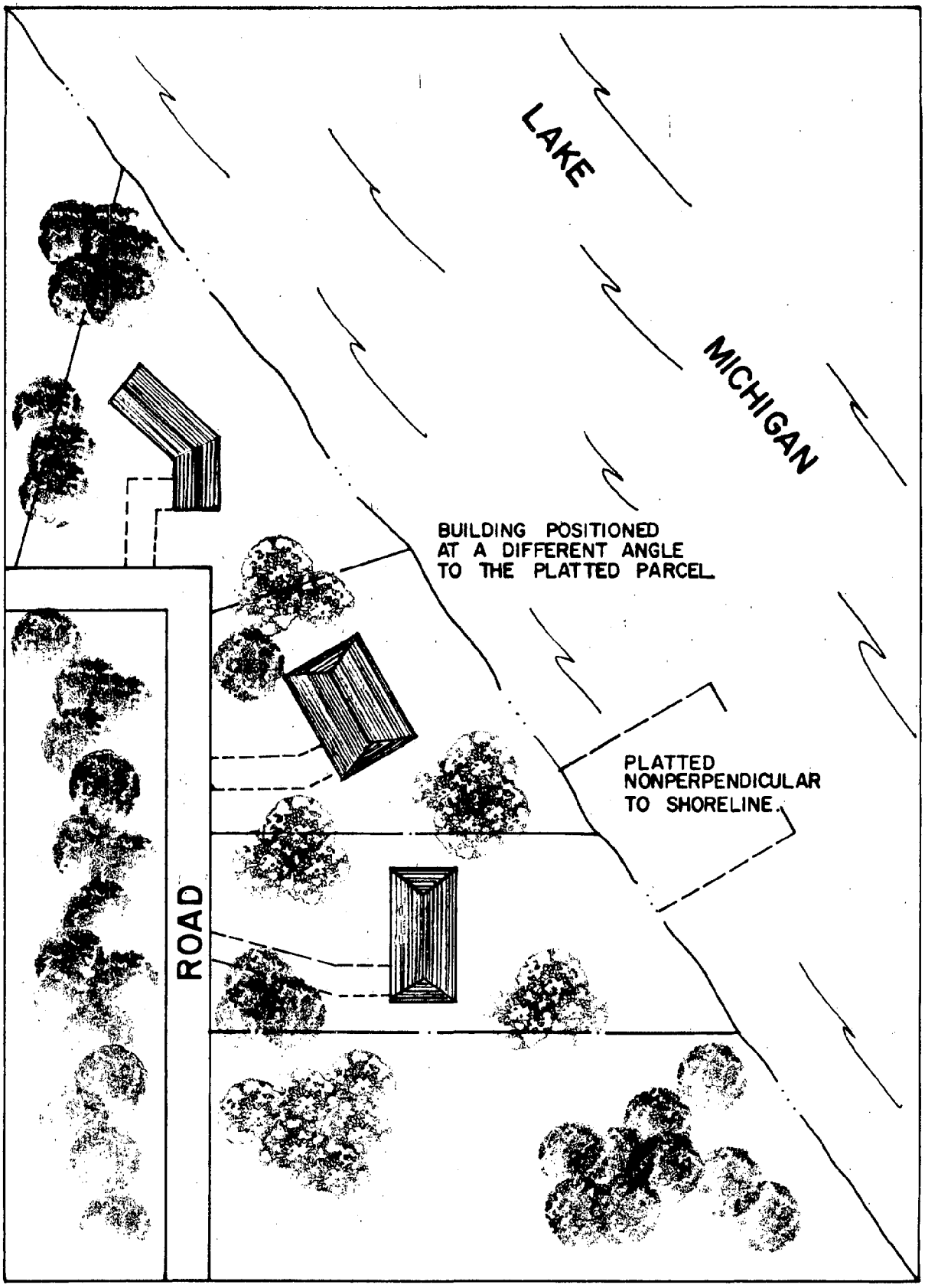
Depending on the degree of parcel orientation to the shoreline, erosion encroachment on adjacent property could occur. Consideration must be directed to the placement of shoreland protection structures and/or devices. In some areas the improperly placed shoreland structures and/or devices have promoted erosion and recession on the immediate property and adjacent property.

The Cadastral Maps have been a useful visual aid for studying the orientation of the shoreland parcels to the shoreline. This pertinent information is considered in reviewing shoreland conditional uses. Any new platted parcels and structures are recommended to be platted perpendicular to the shoreline. The shoreland protection structures and/or devices must cover the platted parcel and be extended a recommended distance northward for effective protection (see Map Two). In addition, other recommendations concerning bluff stability, sloping and vegetation cover are stipulated.

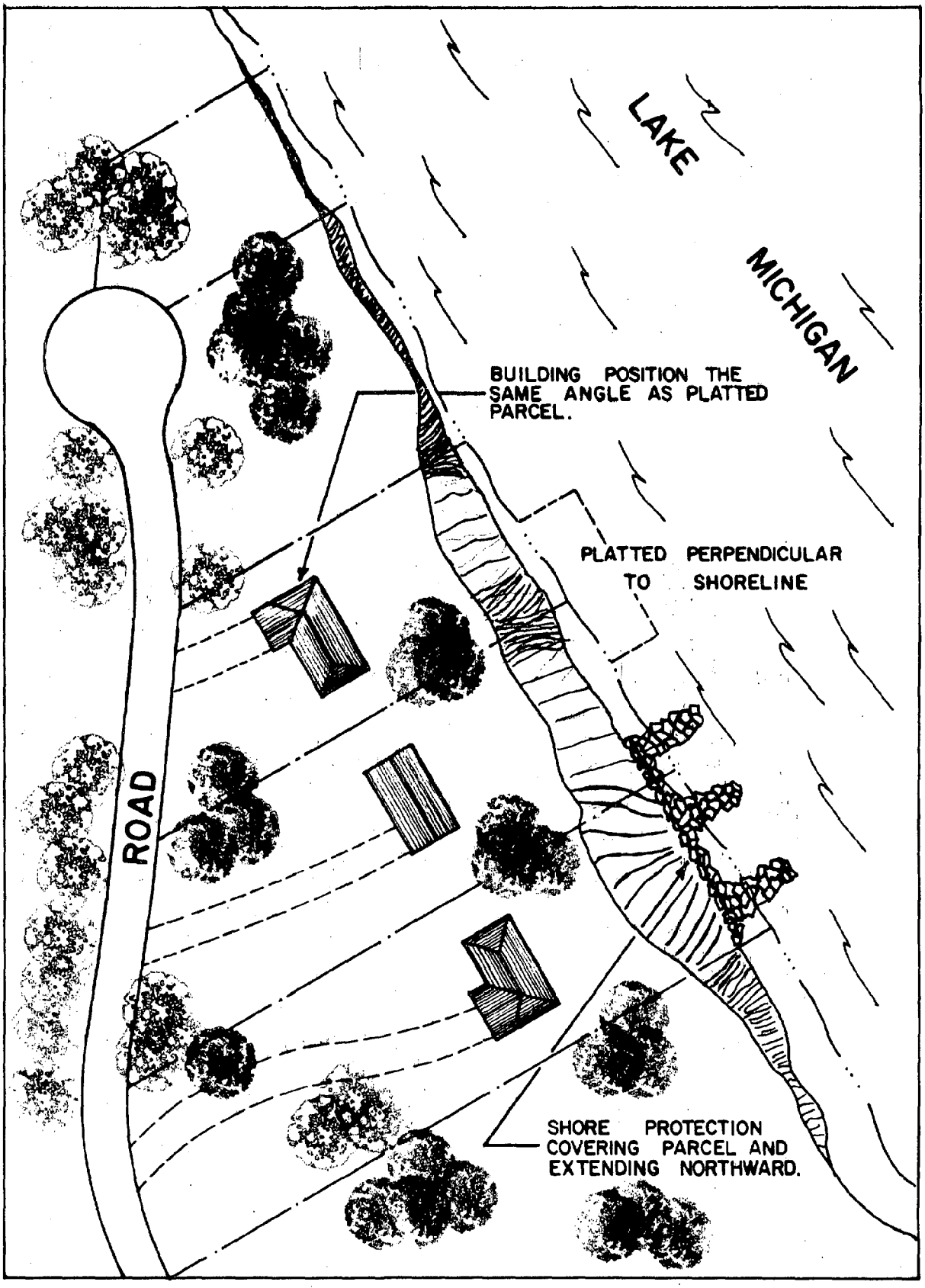
ANALYSIS--PROBLEMS AND RECOMMENDATIONS

Description Problem

There are many defects in the present record resulting from description errors and ambiguities which have accumulated over the years. The analysis of title documents and determination of corner coordinates have brought many of these defects to light and they are entered as part of the cadastre record. This project has not included title search beyond the basic document upon which present title rests and no legal opinion has been sought or secured; also,


LAKE
MICHIGAN
BUILDING POSITIONED
AT A DIFFERENT ANGLE
TO THE PLATTED PARCEL.
PLATTED
NONPERPENDICULAR
TO SHORELINE.
ROAD

MAP ONE


LAKE
MICHIGAN
BUILDING POSITION THE SAME ANGLE AS PLATTED PARCEL.
PLATTED PERPENDICULAR TO SHORELINE
ROAD
SHORE PROTECTION COVERING PARCEL AND EXTENDING NORTHWARD.

MAP TWO

the records do not disclose matters of occupation or adverse rights. Many defects undoubtedly exist which are not disclosed by this study.

The defects that are entered in the Cadastre Mapping and record are shown as gaps, overlays, failure to close, ambiguous property boundaries and other description problems.

Address Problem

The major problem the Real Estate Description Office encountered was providing the correct address to the corresponding plotted parcel. The reason for the problem is that the tract-index and tax-roll books used provide the address to which the tax statements are sent, and this is not necessarily the address of the plotted parcel. To rectify this problem, the Planning and Zoning staff field checked each plotted parcel against the coding forms and verified the address or corrected the address.

All the shoreland property maps must be completed prior to any field check since the maps are required for a reference. For this type of project, it is essential to employ a field check. A correct address is absolutely mandatory for obtaining other information relating to each plotted parcel. This is especially true for obtaining information from computerized billing lists from utilities.

Terminology Problem

In designing the parcel coding forms some of the terms incorporated in the work elements were not precisely defined. For example, the work element "Public Improvements" lists the term "drainage." It is clearly evident to the technician that the meaning of this term could be ambiguous, since every plotted parcel exhibits some form of drainage. Therefore, all terms must be precisely defined and understood by all agencies in the initial stage of developing the coding forms. For this particular project the term "drainage" was defined by the Planning and Zoning staff in Phase Five to mean, plotted parcel serviced by storm water sewers in conjunction with curb and gutter.

Time Element

As in any project, time is a prerequisite. Initially the Cadastre Technical Advisory Committee worked out foreseeable problems, but as the program developed new problems within each work phase were encountered which required attention by the Technical Advisory Committee. Basically, additional time was required to obtain and process the information needed for the parcel coding forms. To provide the best available information each agency researched and cross referenced their work. This is clearly presented in the methodology discussion.

Even though time was a hindrance in the initial stages of the program, the problems have been worked out. This should prove to be a great asset should the program be expanded to cover the remaining areas of Racine County or include other land related categories. By the experience acquired, each agency will be able to obtain and process the information readily. Also, the amount of work rquired has been realized; thereby, time schedules can be precisely followed.

Updating the Program Information

The Shoreland Cadastre information is stored in computer data banks at SEWRPC and the data processing center in Racine County. As changes occur, updating the information will be pertinent for the existence of the program.

The Racine County Planning and Zoning Department can readily detect land use changes by incoming permits, zoning changes, and approved conditional use and variance applications. The Real Estate Description Office can note changes by checking their daily up-dated assessment tax-roll books. Changes will also be noted at the respective Town Hall records and billing lists from utility service centers. Other information concerning a land use change can be directly observed by a field check.

Once the information is obtained it can be added to the computer storage bank. This will not require any additional programming because it will only be a change in information stored.

Information can be obtained, processed, stored and up-dated in a comprehensive manner. Henceforth, this program could be expanded to include other land related categories.

SUMMARY--BENEFITS OF THE SHORELAND CADASTRE TO WISCONSIN COASTAL MANAGEMENT AGENCY AND RACINE COUNTY

The initial impact of the Shoreland Cadastre program is the comprehensive public and private lands record keeping system. The program's output is an identification and quantification of land related information for each precisely defined ownership parcel base within the Racine County coastline. The program has simplified access to this information and made it available by easy retrieval through the use of computer terminals at various agencies.

Racine County was one of the first coastal counties in the State of Wisconsin able to undertake such a program, primarily because it is the only county in which the U.S. Public Land Survey System--the basis for all real property boundary line descriptions and surveys--has been totally remonumented and tied to the state plane coordinate system. Accurate monumentation of all the U. S. Public Land Survey quarter section corners is a procedure necessary to accurately locate, identify, and accurately map property lines. The Shoreland Cadastre and Key Maps are the work products derived from utilizing this procedure.

The primary purpose of the Shoreland Cadastre program is to aid decision-makers by providing a comprehensive inventory of pertinent shoreland information. The decision-makers consist of people within agencies, committees and communities concerned with overall coastal planning and management, especially with regard to the ongoing shoreland policies governed by the State of Wisconsin Coastal Management Agency. The outputs derived from the Shoreland Cadastre program should prove to have great potential in the future investigation and assessment of shoreland uses, regulations and policies. Although the program in its present state is an inventory of shoreland information, many benefits could be realized if the inventory were used to prepare a comprehensive plan for the coastal zone area. Currently, the information attained, designated as "end products," has made the public and private sector MORE

AWARE of shoreland conflicts, uses, improvements, and the need for certain actions. This clearly is a direct benefit to all people concerned with the shoreland of Racine County and coastal management. The following discussion summarizes the "end products" attained from the Shoreland Cadastre program.

The Shoreland Cadastral and Key Maps show the boundaries, lengths and bearings of sides and arc lengths of curves bounding the Cadastral parcels. In addition, the maps identify property boundary defects resulting from title description errors and ambiguities which have accumulated over the years. The defects are shown as gap, overlays, failure to close, ambiguous property boundaries and other description problems. Thus, for the first time an accurate Cadastral Base Map has been developed.

It was observed that effective shoreland protection is directly related to the orientation of shoreland parcels and structures in relation to the shoreline. The generally accepted concensus is that erosion occurs in a perpendicular direction to the shoreline. Therefore, if a shoreland parcel is oriented to the shoreline at any other angle, the rate of erosion and recession realized is usually increased. The Cadastral Maps reveal many shoreland areas that are not platted perpendicular to the shoreline. It is recommended that future parcels be platted perpendicular to the shoreline. Shoreland protection should cover the platted parcel and extend northward for effective protection.

The Shoreland Cadastre program recorded shoreland protection per parcel. An interested agency or individual can easily determine one of four possible situations for each shoreland property: 1) Private shoreland protection, 2) Public shoreland protection, 3) Private and public shoreland protection, and 4) No shoreland protection. It should be noted that the Shoreland Cadastre program does not as yet reveal the effectiveness nor type of shoreland protection structure and/or device per parcel, but it can become the basis for such determination in the future.

Included in the Shoreland Cadastre program is a record of shoreland hazard, designated as long and short term erosion/recession rates. This knowledge will have an effect on future coastal management planning policies to prevent environmental degradation from uncontrolled shoreland development, unsightly shoreland use, and destruction of ecological balances.

Another end product derived from the Shoreland Cadastre program is the determination of quantity, value, and ownership of real estate abutting the Lake Michigan coastline in Racine County. The program also identifies riparian rights and utility, access, and other easements per parcel. This information should be especially useful to coordinate regulations and coastal management policies in reference to land acquisition, lake access points and shoreland protection.

Monitoring property rights as laws and local ordinances change will require special attention to resolve any conflicts that may exist between shoreland plans/management techniques in concurrence with coastal management priorities and practices. The Shoreland Cadastre inventory of public and private land base information denotes land use patterns, existing development patterns, existing public utility services and availability of services. Clearly, a great diversity exists between urban and rural shoreland uses and development. The Shoreland Cadastre information should aid in achieving wise use of the

land and water resources, giving full attention to ecological, cultural, historic and aesthetic values as well as to the economic development.

The Shoreland Cadastre information can provide a service to various agencies, committees and communities. The uniqueness of the Shoreland Cadastre program lies in the versatile ways in which the program can bring forth new information and reinforce existing information. The program information can be easily retrieved by the use of computer terminals at various agencies. This information can be obtained, processed, stored and up-dated in a comprehensive manner. In addition, the computer data banks can be enlarged to include further land related classifications.

The precision and accuracy achieved in this program is the basis for its success. To provide the best available information each agency thoroughly researched and cross referenced its work. A field check was conducted on a parcel by parcel basis, covering the entire Shoreland Cadastre area.

SUMMARY/CONCLUSION

The Shoreland Cadastre area borders on one of the two largest bodies of fresh water in the world, Lake Michigan. This land-water resource is of great value and concern to interested citizens, regional agencies, and local and state governments.

The Shoreland Cadastre program has provided a comprehensive identification and quantification inventory of land related information. It is of utmost importance to stress that the outputs and/or end products derived from this program have made the private and public sector MORE AWARE of shoreland conflicts and potentials.

The ability to utilize the Shoreland Cadastre information should be advantageous to Racine County and the State of Wisconsin Coastal Management Agency. Because the information is now available, a clear overall shoreland policy direction can be determined. The processes for establishing a policy should include the improvement of coordination, implementation and enforcement, and aid in the development of new coastal planning and management policies.

The capability now exists to assist and strengthen decision-making processes to ensure the balanced use of the highly valued coastal resource.

APPENDICES

Appendix A

SHORELAND CADASTRE COASTAL MANAGEMENT PROGRAM PROFESSIONAL SERVICES CONTRACT BETWEEN NEILSEN-MADSEN CONSULTING CIVIL ENGINEERS AND RACINE COUNTY

THIS AGREEMENT is made and entered into this _____ day of _____, 1979, by and between the County of Racine, hereinafter called the "County," represented by Elwood E. Hoeppner and its Planning & Zoning Department, 14200 Washington Avenue, Sturtevant, Wisconsin, and Nielsen-Madsen Consulting Civil Engineers, Racine, Wisconsin, hereinafter called the "Contractor."

WHEREAS, the County deems it advisable to engage the professional services of the Contractor, and it appears that such services can be performed more economically under a contract;

WHEREAS, the Racine County Board of Supervisors authorized and approved contractual arrangements with the Contractor in Resolution No. 78-264;

WHEREAS, the Contractor has signified a willingness to provide professional services to the County;

NOW, THEREFORE, in consideration of the premises and of their mutual and dependent agreements, the parties hereto agree as set forth in the following pages which are annexed and made a part hereof (Pages __ - __).

This contract is complete and valid as of the above date.

RACINE COUNTY

BY _____
Elwood E. Hoeppner

TITLE _____
County Board Chairman

DATE _____

BY _____
Dennis Kornwolf, County Clerk

NIELSEN-MADSEN CONSULTING CIVIL ENGINEERS

BY _____

TITLE _____

DATE _____

I. GENERAL

A. The Contractor will provide the services hereinafter set forth in accordance with the best professional standards.

B. Employment. The Contractor will not engage the services of any person or persons now employed by the County, including any department, commission, or board thereof, to provide services relating to this contract without

the consent of the employer of such person or persons and of the County.

C. Nondiscrimination in Employment. Chapter 16.765 of the Wisconsin Statutes requires the Contractor agree to the provision as stated below:

> "In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s. 51.01(5) or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor further agrees to take affirmative action to ensure equal employment opportunities for persons with disabilities. The Contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause."

D. Legal Relations. (1) The Contractor will at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct.

(2) In carrying out any provisions of this Agreement or in exercising any power or authority granted to the Contractor thereby, there will be no personal liability upon the Contractor; it being understood that in such matters the Contractor acts as agent and representative of the County.

E. Review. Liaison with the County will be through Arnold L. Clement, Planning Director and Zoning Administrator, 14200 Washington Avenue, Sturtevant, Wisconsin 53177, (414) 886-3731, who will represent the County's interest in coordinating the Contractor's provision of services as outlined in the contract.

F. Arbitration. Disputes regarding quality, quantity, and timeliness will be subject to arbitration as provided in Chapter 298, Wisconsin Statutes.

G. Right to Publish. The Contractor will be allowed to write and have its writing published with the following conditions:

1. All material produced under this agreement shall become the property of the Contractor and may be copyrighted in its name. The U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Coastal Zone Management Program and the County reserve a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, the materials produced under the contract for government purposes.

2. The cover or title page of all reports, studies, or other documents resulting from the contracts shall acknowledge the financial assistance provided by the State of Wisconsin, Department of Administration, Office of State Planning and Energy and the Coastal Zone Management Act of 1972, as amended, administered by the Office of Coastal Zone Management, National Oceanic Atmospheric Administration.

3. The Contractor will provide the County with copies of all documents. The documents are to be submitted with the final report.

H. Examination of Records. (1) The Contractor agrees that the State DOA, County, the Comptroller General of the United States, and the Secretary of Commerce or any of their duly authorized representatives shall, until the expiration of three (3) years from the date of contract completion under this contract, have access to and the right to examine any directly pertinent books, documents, papers and records of the Contractor involving transactions related to this contract.

(2) The Contractor agrees that payment(s) made under this contract shall be subject to reduction for amounts charged thereto which are found on the basis of audit examination not to constitute allowable cost under this contract. The Contractor shall refund by check payable to the County the amount of such reduction of payments under completed or terminated contracts.

I. Continuance of Contract. As required by Wisconsin State Statutes, this Agreement must include the following provisions: Continuance of this contract beyond the limits of funds available shall be contingent upon appropriation of the necessary funds, and the termination of this contract by lack of appropriation shall be without penalty.

J. Termination of Agreement. (1) Termination for Cause. The County reserves the right to terminate the contract in whole, or in part, at any time before the date of completion, upon written notice to the grantee that it has failed to comply with the conditions of the contract. In connection with such termination, payments made to the contractor or recoveries by the County shall be in accord with the legal rights and liabilities of the parties.

(2) Termination for Convenience. The County or the Contractor may terminate the contract in whole, or in part, if both parties agree that the continuation of the contract will not produce beneficial results commensurate with the further expenditure of funds. The County and Contractor shall agree upon the termination conditions, including the effective date and, in the case of partial terminations, the portion to be terminated. The grantee shall not incur new obligations for the terminated portion after the effective date, and shall cancel as many outstanding obligations as possible. The County shall allow full credit to the Contractor for the Federal, State or County share of the noncancellable obligations, properly incurred by the Contractor prior to termination.

K. Maintenance of Records. All required records shall be maintained until an audit is completed and all questions arising there from are resolved, or three years after completion of a project and submission of the final "Financial Status Report", whichever is sooner.

II. SCOPE OF SERVICES

The contractor shall supply all the necessary personnel, equipment, and materials (except as otherwise may be provided herein) to accomplish the tasks set forth on the attached schedule (Appendix A).

III. TIME, COST AND ADMINISTRATION

a. The total cost of this Agreement is not to exceed Thirty-one thousand-four hundred and ninety four dollars ($31,494) for the period _____ through _____.

b. Payment shall be by the County to the Contractor upon receipt of monthly invoices submitted in triplicate to the following address: Racine County Planning & Zoning Department, 14200 Washington Avenue, Sturtevant, Wisconsin 53177.

c. Invoices must itemize categories of expenses actually incurred, including professional fees at stated rates, travel and other direct costs.

d. Final invoice will be submitted to the Department not later than 30 days following close of the Agreement.

Appendix B

BPR/mjs
7/11/79

Number 006390

INDIVIDUAL PARCEL CODING FORM FOR
THE RACINE COUNTY CADASTRE

A. Parcel Identification

Town Range Sec. | ¼ ¼¼ | Co. # Dist. #

address | Dir. | Street Name | Type

Post Office | Zip Code | San. Dist.

Tax Key No./Parcel Number | School Dist.

1-Residential 2-Mercantile 3-Manufacturing 4-Agricultural
5-Swamp & Waste 6-Productive Forest Lands 7-Non-productive Forest Lands

Code	Acreage	Land Value	Improvement Value

4-Woodland Tax @ 20¢
5-Woodland Tax @ 40¢

Code	Acreage

Public Lands Subject to School Tax Only
1-Sec. 70-114 3-Sec. 70-117
2-Sec. 70-116 4-Sec. 70-175

Code	Acreage	Value

Exempt from Gen. Prop. Tax
1-Federal 3-County 5-Municipality
2-State 4-Other 6-Quasi-Public

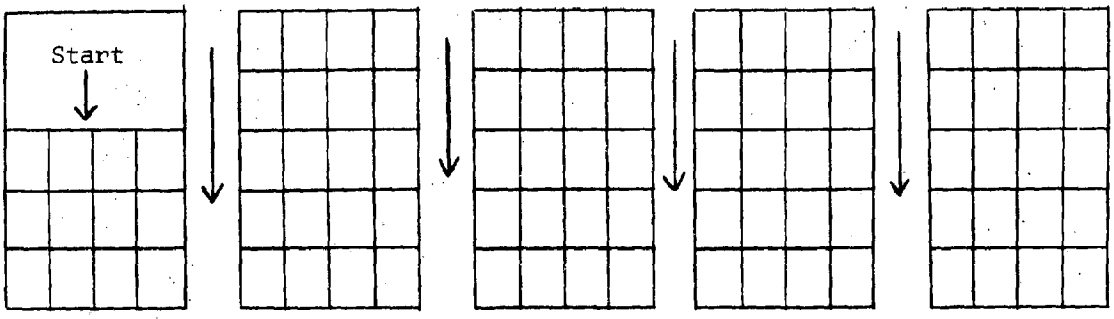
Code	Acreage

Survey # (on file)	Parcel Acreage	Volume	Page

Town Range Sec.

Number 000390

B. Abbreviated Parcel Description



C. Description Problem

1-Overlap ☐ 2-Gap ☐ 3-Failure to close ☐ 4-Other (specify) ☐

Describe Other

D. Deed Restrictions

1-Use 2-Area 3-Yard 4-Building 5-Subdivision 6-Other (specify)
7-None listed on Original Deed

☐ ☐ ☐ ☐ ☐ ☐ ☐

Describe Other

E. Utility Easements

1-San. Sewer 2-Water Supply 3-Drainage 4-Electricity 5-Nat. Gas
6-Telephone 7-TV 8-Gen. Util. 9-Other (specify) 10-None listed

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Describe Other

F. Access Easements

1-Pedestrian 2-Vehicular 3-Maintenance 4-Other (specify)
5-None listed on Original Deed

☐ ☐ ☐ ☐ ☐

Describe Other

Town Range Sec.

Number 006390

G. Other Easements

1-Air "Rights" 2-Vision Clearance 3-Scenic/Recreation 4-Building 5-Other (specify)
6-None listed on Original Deed

Describe Other

H. Riparian Rights

1-Runs with Title Fee 2-Excepted from Title (specify private, public, unknown)
3-Not Listed on Original Deed

Describe Excepted from Title

I. Mineral Rights - Ownership

1-Runs with Title Fee 2-Excepted from Title (specify private, public, unknown)
3-Not Listed on Original Deed

Describe Excepted from Title

Physical Description:
1-Sand 2-Gravel 3-Stone 4-General 5-Other (specify)

Describe Other

J. Zoning Information

Zoning	Type	Percent

Code	1-Conditional Use (Describe) 2-Variance (Describe)

Page 4 of 4 Town Range Sec. Number 006390

K. Public Improvements

1-San. Sewers 2-Water Supply 3-Drainage 4-Electricity 5-Nat. Gas 6-Telephone 7-TV 8-Paved Street 9-Curb & Gutter 10-Sidewalks 11-Recreation Facilities 12-Shoreland 13-Other (specify)

Describe Other

L. Land Use

Type	Percent

M. Soils

Type	Percent

N. Flood Plain Hazard

1-land 2-buildings

O. Shoreland Hazard

Bank Erosion Recession Rate 1-Long Term 2-Short Term		
Code		
		ft/year
		ft/year

P. Private Improvements

1-Primary Structure 2-Access Structure 3-Shoreland Structures 4-Other (specify)

Describe Other

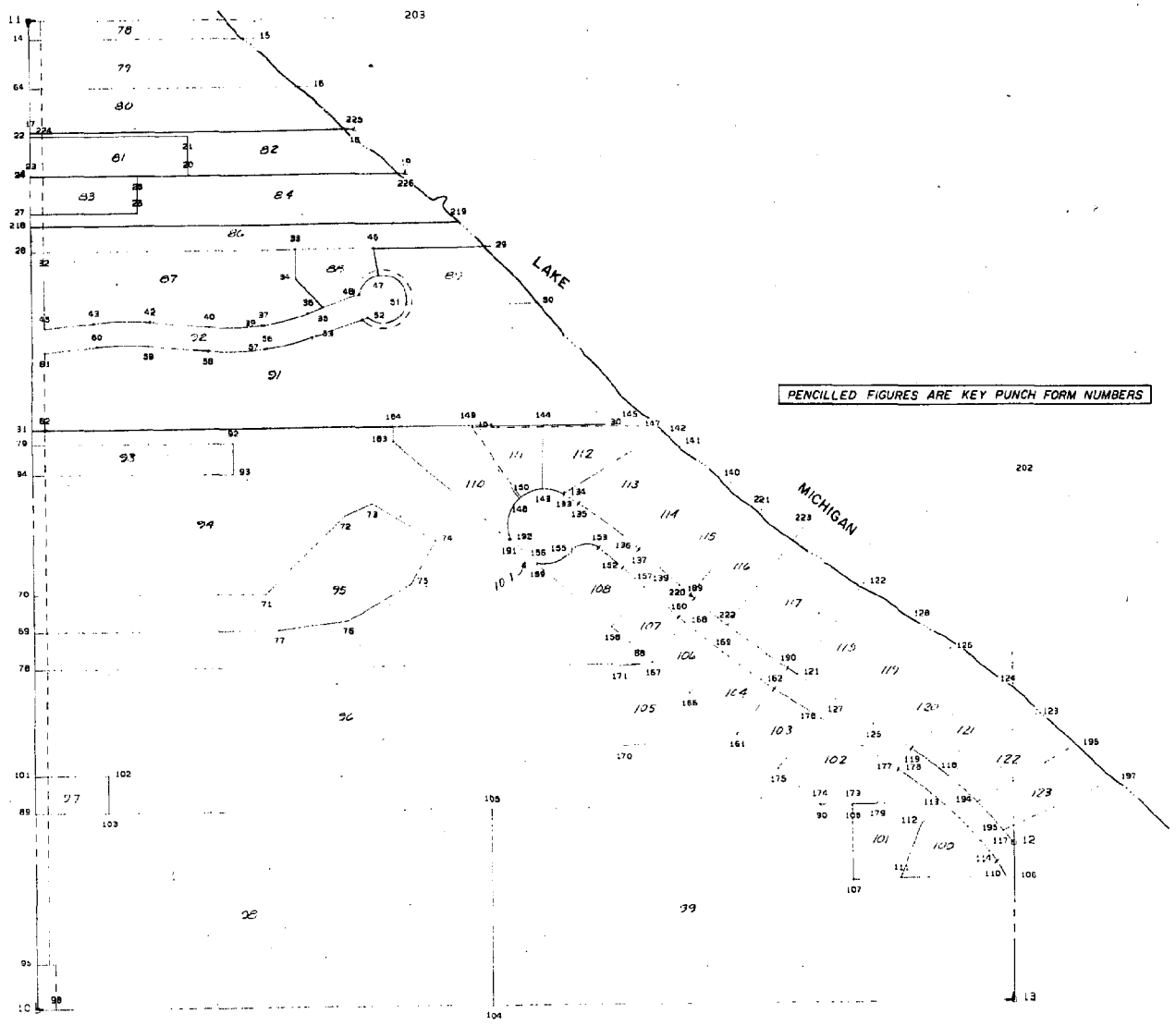
Q. Historic Designation

1-Local Registered 2-State Registered 3-Federal Registered 4-Local Nominated 5-State Nominated 6-Federal Nominated 7-Local Eligible 8-State Eligible 9-Federal Eligible

R.

1-Agricultural Land Preservation Tax		2-Other Tax Relief
Code	@ Per Acre	Acreage

Appendix C



RACINE COUNTY SHORELAND CADASTRE PROGRAM
RACINE COUNTY, WISCONSIN

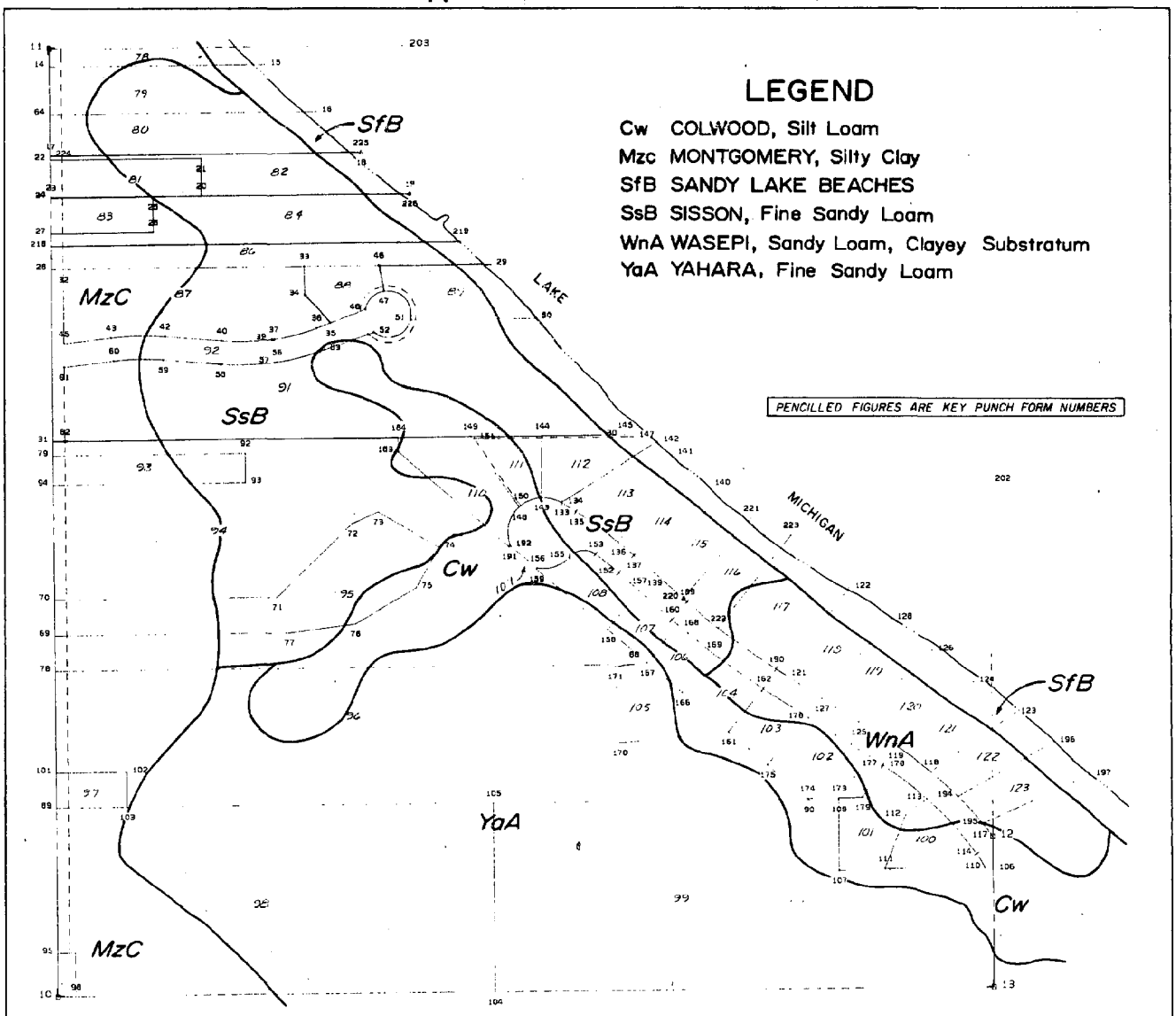
PREPARED BY THE RACINE COUNTY
PLANNING & ZONING DEPARTMENT

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS REPORT HAS BEEN PROVIDED THROUGH THE WISCONSIN COASTAL MANAGEMENT PROGRAM BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, ADMINISTERED BY THE FEDERAL OFFICIAL OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

BASE MAP

COORDINATE STORAGE KEY MAP OF
S.W. 1/4 SEC. 16, T. 4 N., R. 23 E.
TOWN OF CALEDONIA

Appendix C (continued)



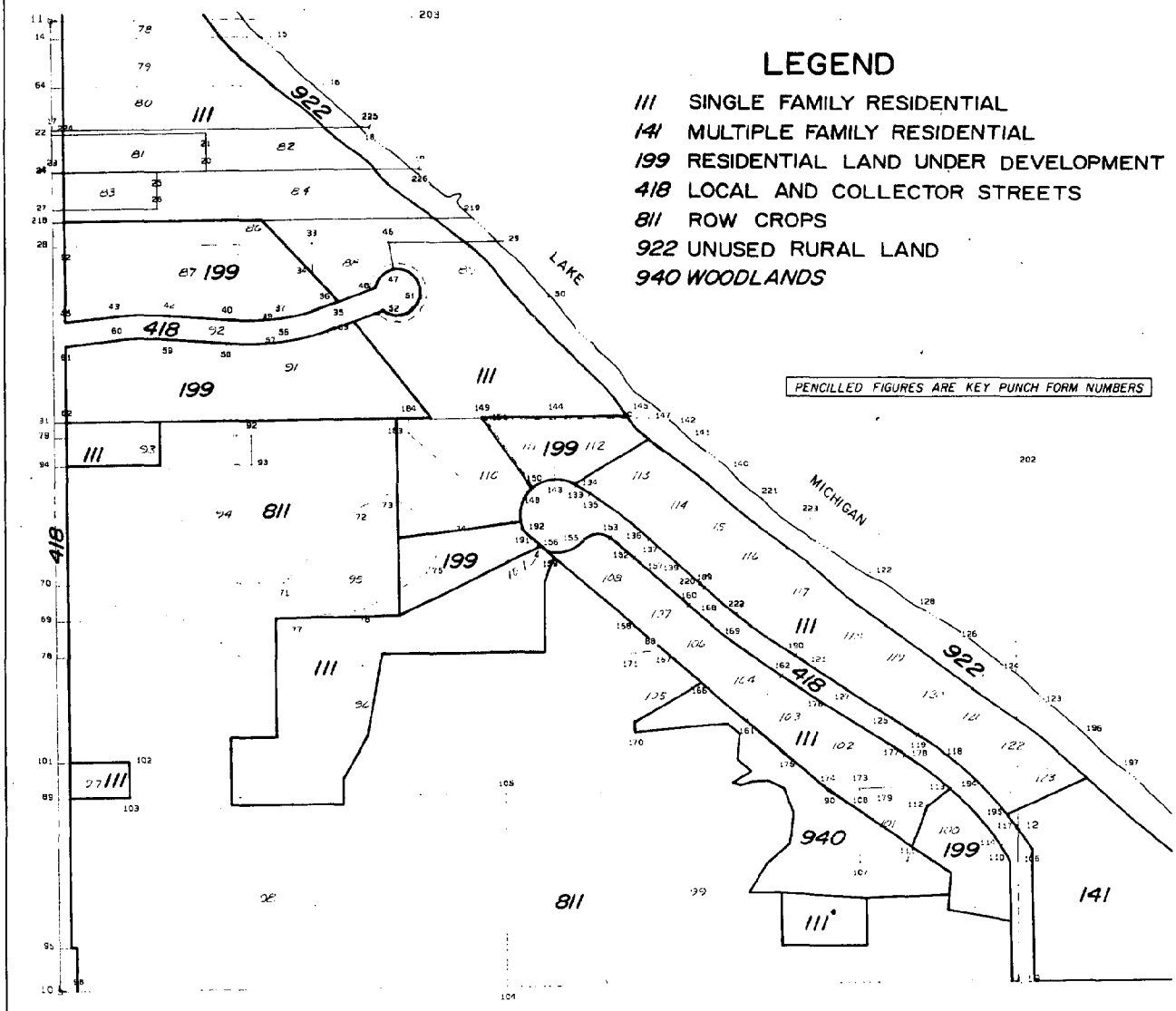
RACINE COUNTY SHORELAND CADASTRE PROGRAM
RACINE COUNTY, WISCONSIN
PREPARED BY THE RACINE COUNTY
PLANNING & ZONING DEPARTMENT

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS REPORT HAS BEEN PROVIDED THROUGH THE WISCONSIN COASTAL MANAGEMENT PROGRAM BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, ADMINISTERED BY THE FEDERAL OFFICIAL OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

SOILS

COORDINATE STORAGE KEY MAP OF
S.W. 1/4 SEC. 16, T. 4 N., R. 23 E.
TOWN OF CALEDONIA

Appendix C (continued)



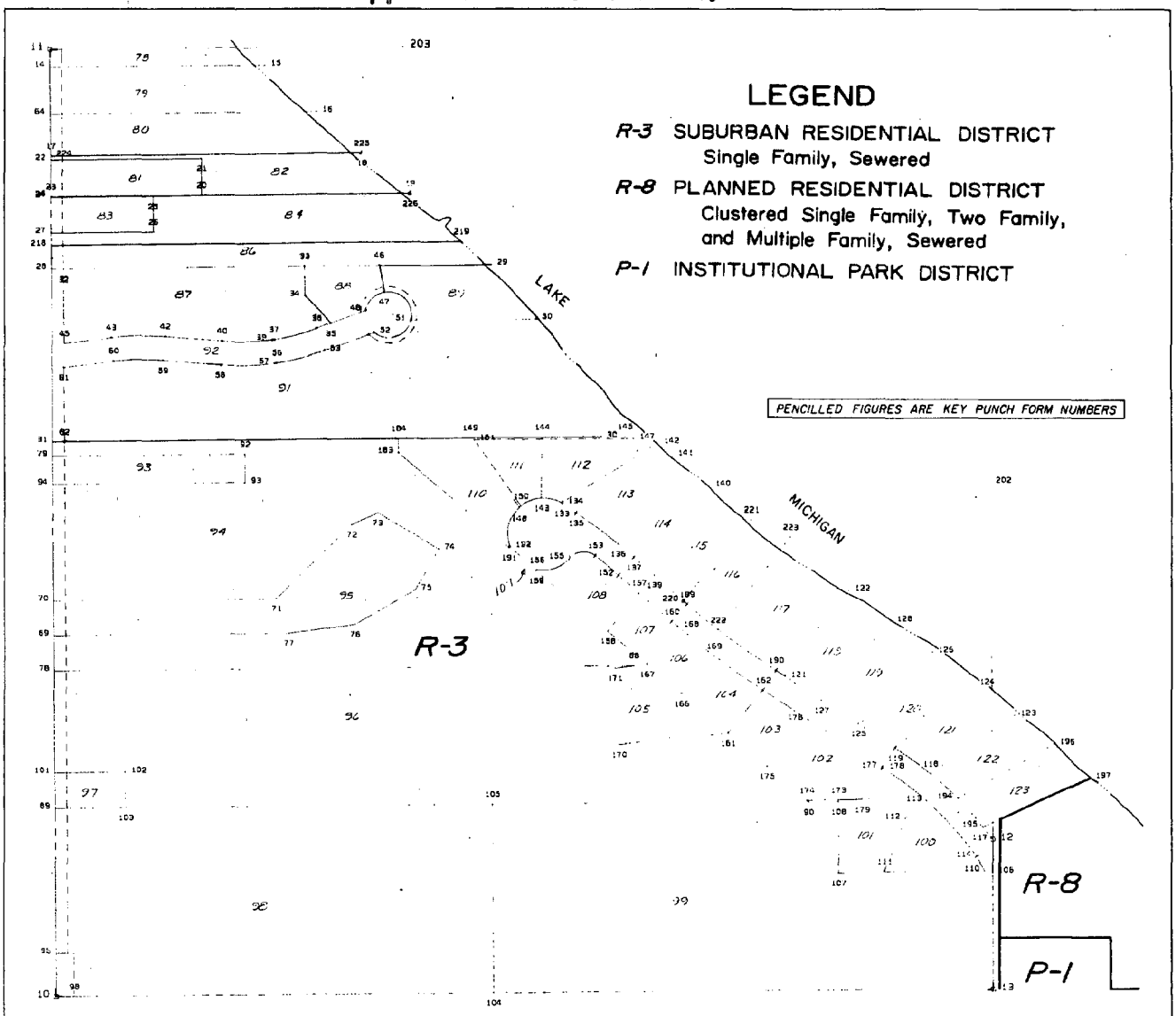
RACINE COUNTY SHORELAND CADASTRE PROGRAM
RACINE COUNTY, WISCONSIN
PREPARED BY THE RACINE COUNTY
PLANNING & ZONING DEPARTMENT

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS REPORT HAS BEEN PROVIDED THROUGH THE WISCONSIN COASTAL MANAGEMENT PROGRAM BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, ADMINISTERED BY THE FEDERAL OFFICIAL OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

LAND USE

COORDINATE STORAGE KEY MAP OF
S.W. 1/4 SEC. 16, T. 4 N., R. 23 E.
TOWN OF CALEDONIA

Appendix C (continued)



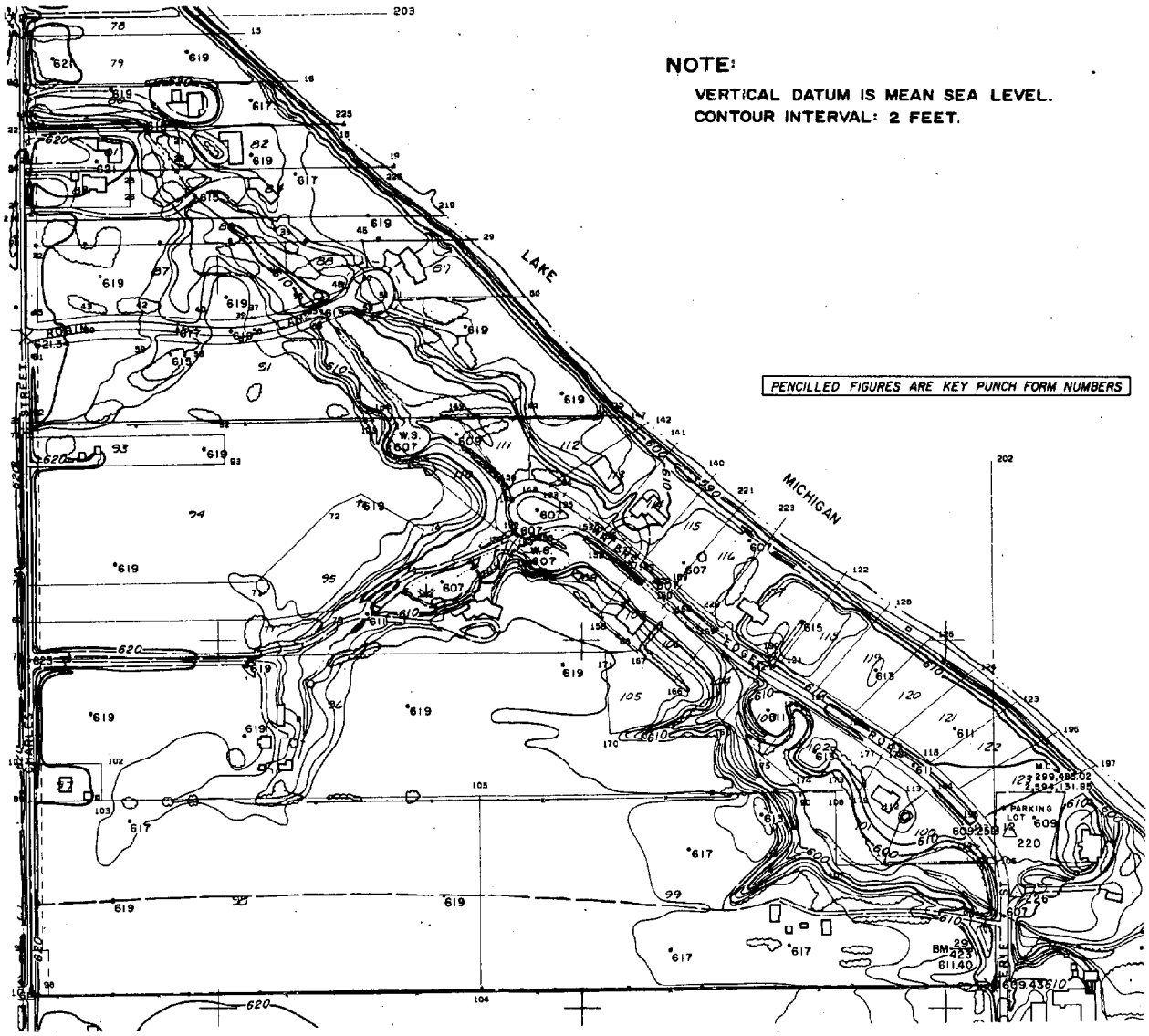
RACINE COUNTY SHORELAND CADASTRE PROGRAM
RACINE COUNTY, WISCONSIN
PREPARED BY THE RACINE COUNTY
PLANNING & ZONING DEPARTMENT

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS REPORT HAS BEEN PROVIDED THROUGH THE WISCONSIN COASTAL MANAGEMENT PROGRAM BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, ADMINISTERED BY THE FEDERAL OFFICIAL OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

ZONING

COORDINATE STORAGE KEY MAP OF
S.W. 1/4 SEC. 16, T. 4 N., R. 23 E.
TOWN OF CALEDONIA

Appendix C (continued)



RACINE COUNTY SHORELAND CADASTRE PROGRAM
RACINE COUNTY, WISCONSIN

PREPARED BY THE RACINE COUNTY
PLANNING & ZONING DEPARTMENT

FINANCIAL ASSISTANCE FOR THE PREPARATION OF THIS REPORT HAS BEEN PROVIDED THROUGH THE WISCONSIN COASTAL MANAGEMENT PROGRAM BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, ADMINISTERED BY THE FEDERAL OFFICIAL OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

TOPOGRAPHY

COORDINATE STORAGE KEY MAP OF
S.W. 1/4 SEC. 16, T. 4 N., R. 23 E.
TOWN OF CALEDONIA

DATE DUE

GAYLORD No. 2333 PRINTED IN U.S.A.

NOAA COASTAL SERVICES CENTER LIBRARY
3 6668 14102 7385